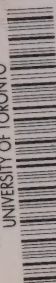


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THE COST OF DENTAL EDUCATION IN CANADA

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A.M. Hunt, A. Desjardins  
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J. Ranson

# RESEARCH REPORT

*issued by the  
Dental Health Care  
Services Research Unit*

THE FACULTY OF DENTISTRY



UNIVERSITY OF TORONTO





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Dental Health Care Services and Epidemiology  
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## THE COSTS OF DENTAL EDUCATION IN CANADA

From time to time, governments and universities require accurate estimates of the costs of dental education. The costs of dental education can be examined from two points of view: the costs to the student and the costs to the universities and colleges (and, by extension, to the government). This topic commonly includes some calculations on one or both types of costs and frequently carries with it an exhortation for more refined statistics. In this respect, this paper continues in that tradition, especially with regard to costs to the university. It also includes a review of some of the main literature on this topic, some examination of the need for new information and also some recent data from Canadian faculties of dentistry with particular reference to the University of Toronto.

Estimates of the costs to the universities and colleges have been produced only at irregular intervals in Canada. One reason for the irregularity seems to have been the intertwined difficulties of defining an adequate methodology and, subsequently, obtaining the required data. Whenever cost studies have been done by various institutions or by other interested groups, data collection has always been a problem because the financial information systems of the universities have been set up for purposes other than cost per student information.



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Determining the costs to the student is less complex in terms of both methodology and data retrieval. Calculation of the costs to the Canadian student have been published annually by the Canadian Dental Association in the Dental Education Register. While the cost of dental education to the student is an interesting and important statistic to know, it seems that the cost to the universities and colleges is perhaps more important in view of the many and conflicting demands for public funds. One can hardly be unaware of the fact that provincial governments are very concerned about mounting public spending in the education and health field. This concern has been magnified considerably with the June 23, 1975 federal budget of new federal-provincial cost-sharing plans for health which will greatly encourage restraint in public spending.<sup>1</sup> Within the university structure itself there are difficult adjustments being made due to financial cutbacks by most provincial governments. There is some public obligation to identify mechanisms for controlling the rate of increase in expenditures. This requires an information base which would necessitate information on the cost of dental education to universities and colleges.

What follows is a review of Canadian and some American literature on the costs of dental education from the two points of view just mentioned. Following this is a discussion of a methodology recently used in the United States<sup>2</sup> for estimating the costs of health education to colleges and universities. In order to facilitate the discussion, there is first a brief section on the definitions which will be used in this paper.





## DEFINITIONS

A review of the literature shows that different concepts of "cost" have been applied by different investigators. For instance, some authors include overhead expenses such as general maintenance costs and others do not. Some express costs to the colleges and universities net of student generated income (tuition and clinic fees) but others do not. And, in some cases, the description of the method is not specifically set out. In the literature review which follows, the various distinctions will be pointed out. In order to facilitate such a discussion, it is useful to define a terminology for costs to be used in this paper. The following definitions will be used:

- 1) gross direct costs - all expenditures excluding overhead costs.
- 2) gross full costs - all expenditures including overhead costs.
- 3) net full or direct costs - full or direct expenditures less income from tuition fees, income generated in the clinics and/or external research funds.

When the term "cost of dental education" is used in the literature, it refers mainly to dental students pursuing the Doctor of Dental Surgery (D.D.S.) degree. Graduate, postgraduate and dental hygiene students are usually mentioned separately.

## CANADIAN STUDIES

### Cost of Dental Education to the University

Much of the work done in deriving this statistic in Ontario has been based on a study by K.J. Paynter.<sup>3</sup> From this study, the gross direct expenditure by Canadian universities for dental education was estimated at \$2,400 per undergraduate dental student per year for 1962. In the process of arriving at this





figure, certain assumptions were made. One of the initial assumptions was that all direct costs incurred by the dental schools relate to the dental program only. Later, this assumption was relaxed and costs attributable to the hygiene program were introduced by making the assumption that the costs per year of educating a hygiene student were the same as for a dental student. This permitted the calculation of the gross direct cost per student by dividing the total gross direct costs of university dental schools by the total number of dental and hygiene students. The result was a direct cost per student (dental student and dental hygiene student) of \$2,200. It was further estimated that the net direct cost for the dental program on a per student basis was \$1,550 (assuming the cost for a hygiene student was the same as for a dental student). The cost per postgraduate or graduate student was estimated at \$7,000 to \$10,000.

All of the foregoing estimates were based on 1962 information. Paynter estimated the gross direct cost per dental student at \$3,000 in 1964 (assuming that all costs of dental schools are allocated to the dental program only).

Two more recent studies have been made in Ontario. The Commission on Post-Secondary Education in Ontario<sup>4</sup> estimated that the gross full cost of dental education per student in 1968-69 was \$7,586 per professional training year. The data were largely collected from sources external to the educational institutions involved. The authors noted that this limitation caused certain gaps in their data base and that, consequently, a number of assumptions were made. Accordingly, they cautioned against regarding the final cost figures as representing the last word on costs.



In fact, the gross full cost per student per professional year to the university was the same for dentistry, medicine and veterinary medicine. It is unlikely that the true figures were exactly the same.

In 1970, Fraser,<sup>5</sup> using information from Dalhousie University's Faculty of Dentistry, estimated that the net cost to a university per student per year was \$5,735.

Turning now to the costs of the other interested party in dental education, the costs of the dental student will be examined.

#### Costs of Dental Education to the Student

The costs borne by the student can be divided into two types: out-of-pocket costs and opportunity costs. Out-of-pocket costs involve actual outlays of money for the purpose of obtaining dental education. These costs include tuition fees, incidental fees, purchase of books and instruments and living expenses. Opportunity costs do not involve the direct outlay of money but represent the monetary value of opportunities foregone by the decision to pursue a dental education. The major opportunity cost to the student is the income that the student would have been earning if he had worked instead of being in school. In 1972, the Task Force on Dental Care in Nova Scotia<sup>6</sup> estimated that at Dalhousie University, it would cost a dental student \$36,040 for six years of dental education, of which \$20,000 represented opportunity costs or foregone income (table 1). The magnitude of dental education cost estimates vary depending on whether dental education is considered to include the pre-professional years or not.





The Canadian Dental Association, Bureau of Economic Research has reported dental hygiene and undergraduate dental student costs in the Dental Education Register for several years for both pre-dental and dental education.<sup>7</sup> Costs were reported for tuition, instruments and supplies, text books, incidentals and also for room and board. Table 2 shows this information for 1973-74. In 1973-74, based on one year pre-dental education and four years in the Faculty of Dentistry at the University of Toronto, the cost, excluding opportunity costs, was estimated at \$12,600.

Other Canadian Dental Programs - Dental Hygienists, Assistants and Technicians

(1) Costs to the Colleges

Costs of a number of other programs related to the dental profession have been estimated. As with the cost of the dental program, the information on these programs is incomplete.

The gross full cost of the Saskatchewan dental nursing program at the Wascana Institute of Applied Arts and Sciences in Regina was estimated at \$28.49 per training day for the 1973/74 academic year. The net full cost (gross full cost less tuition fees and, in this case, the imputed value of dental services supplied in training) was \$20.83.<sup>8</sup>

The dental assistant courses at Ontario community colleges have been costed out at an average of \$2,348 per student per year for 1972/73.<sup>9</sup> For the same year, the cost of educating a dental technologist was \$2,014.





### The Cost to the Dental Hygiene Student

Each year, estimated costs of the dental hygiene program is published in the Dental Education Register.<sup>7</sup> Total annual cost for dental hygiene training varied between \$3,000 at the University of Manitoba to \$4,300 at Dalhousie University (table 3).

### Studies Conducted in the United States

In the United States, there has been greater effort made to determine the cost of dental education. One major U.S. study, "Cost Study of Dental Education",<sup>10</sup> examined dental education costs using 1963-64 academic year information for American and Canadian faculties of dentistry. The study was conducted by circulating a pre-tested manual of instruction to an accountant or business officer of the dental faculty. The gross full cost per student for the combined American and Canadian dental schools ranged from \$2,024 to \$10,612 (table 4).

One recent report provided a more sophisticated approach to determining the costs of education. The report was produced by the Institute of Medicine of the National Academy of Sciences, United States, as the result of a Congressional request to determine the costs of education in the health professions.<sup>2</sup> The analysis in this study was founded on the same premise as an earlier study published in 1965 by the American Dental Association<sup>10</sup> - that it is reasonable to allocate non-instructional costs to the various programs on the basis of the instructor's time spent in each program. However, the more recent study proceeded to greater analytical depth in determining the distribution of staff time. Eight dental schools were chosen such that they



were representative of the population of dental schools on a number of parameters using factorial and cluster analysis. The instructors at these schools were then asked to keep a diary of their time for one week. This information was used as a basis for allocating staff salaries, support staff salaries and most other expenses.

For the 1972-73, the average cost per dental student was \$9,059 and the range was from \$6,132 to \$16,000 (table 5). Dental schools numbered 1 to 5 were public institutions, and those numbered 6 to 8 were privately endowed. The average cost for the private schools was \$7,289 and for the public schools, \$10,122. The range for the private schools was \$6,132 to \$8,060.

#### Sources of Variation in Student Costs

It was found that there were three major reasons for cost variations between schools.<sup>2</sup> These reasons are set out below:

1. variation in faculty costs per student which is affected principally by the faculty/student ratio and, to a much lesser extent, by variations in staff salaries;
2. other direct costs per student, including support staff salaries and other operating expenses.

and 3. research costs.

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##### Cost of Dental Education to the University

As an example of Canadian dental education cost data, the Faculty of Dentistry, University of Toronto budget was re-categorized and costs were estimated according to the United States Department of Health and Welfare guidelines<sup>2</sup> (see tables 6 and 7).





Since dental and dental hygiene students receive instruction from the same academic staff and since budget figures do not differentiate the two groups, it was assumed that education costs incurred were similar for both undergraduate groups. The combined dental and dental hygiene undergraduate costs and the postgraduate and graduate costs were derived from proportion of time that staff devoted to teaching in the two areas. The average full gross costs of dental education at the University of Toronto for 1974-75 were estimated at \$8,564 per year per dental and dental hygiene student respectively and \$15,463 per graduate and postgraduate student (table 6). Average full gross costs for 1975-76 were estimated at \$9,107 per undergraduate student and \$16,810 per graduate student (table 7).

A document entitled "Objectives of the Faculty of Dentistry, University of Toronto" shows that approximately 40 per cent of faculty effort is expended in undergraduate education and 18 per cent in graduate (and postgraduate) education (1972-73 data), leaving 42 per cent of faculty time for non-instruction duties: - such as research (16 per cent for 1972-73), support services and administration (22 per cent in 1972-73) and public service activities (4 per cent to 6 per cent). Assuming that gross instruction costs are allocated on the same basis as a teacher allots his time to instruction and non-instruction duties, faculty costs were assigned in the same proportions. That is, 40 per cent of the faculty budget was assigned to the undergraduate students and 18 per cent to the graduate students. Of the remaining 42 per cent,  $\frac{4}{5}$  was assigned to the undergraduates and  $\frac{1}{5}$  to the graduates.



In tables 6 and 7, "other direct costs" comprise these items: equipment, supplies and staff benefits. Indirect costs include university administrative and maintenance services for all of the programs on the St. George campus (table 8). An average cost per student was obtained by dividing gross costs for university overhead (\$26,127,912) by total number of students attending the St. George campus (36,823). Depreciation costs represents two per cent of gross book value. This percentage figure was obtained from a comparable table in the U.S. study Costs of Education in the Health Professions.<sup>2</sup> Sponsored research costs per student were calculated by dividing the sum of total research grants awarded to the Faculty of Dentistry by the total number of students in the Faculty.

Net education expenditures per student were also calculated by offsetting research funds and dental clinic revenues against average gross education costs. For 1975-76, the net education expenditure per undergraduate student (table 9) was \$7,538 compared to \$9,107 for average gross costs.

Student and staff enrolment patterns in 1974-75 and in 1975-76 are compared in table 10. The 1975-1976 student/staff ratio was considerably improved with a 7.7:1 ratio in comparison with the ratio of 8.5:1 in 1974-75.

The per student cost of dental education to the University which includes overhead and research costs is not available for the other universities. However, information on total budgets and student enrolment of several Canadian dental schools was gathered by Nikiforuk.<sup>11</sup> An estimate of comparative per student costs was derived from this information (table 11).





Total faculty budget figures utilized in the table exclude maintenance and depreciation costs, research grants and direct costs of teaching basic science by other faculties. Costs were not separated according to undergraduate or graduate instruction. However, undergraduate dental and dental hygiene students were costed at the same level simply because the costs cannot be separated at most schools. The postgraduate and graduate enrolment was weighted by a factor of 2 in the calculation of the cost per student. The annual costs of dental education using this analysis varied from \$14,387 per student at Laval to \$4,425 at McGill University.

One must caution the reader that unrefined data such as those in table 11 can be quite misleading. Nevertheless, they are readily available to government departments and others who can interpret them as they see fit. The very fact that there is such a wide divergence in per student costs to the universities hints at special influences such as the need for more full-time staff in certain geographical locations, the initial high costs in new schools which have not reached maximum enrolment, variations in the allocation of clinic income, or the inclusion of some costs such as fringe benefits in the faculty budget which may be born by some other administrative department in the university. Publication of the raw data here simply illustrates that these are the best available at present and strengthens a plea for better information.



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Costs of Dental Education to the Student

Direct costs to the student as outlined in tables 12, 13 and 14 involve costs incurred for tuition, instrument fees various student and athletic fees, textbooks, room and board and minimal pocket money per week for transportation and incidentals. Added to these total direct costs are opportunity costs or the value of income lost because the student opted to pursue his education rather than become a wage earner.

For 1975-1976, total direct costs minus opportunity costs were estimated at \$3,694 for students (table 12). For the same period, 1975-1976, total gross costs, including opportunity costs, were estimated at \$7,934 for first-year students and \$7,427 for fourth-year students. For four years of dental education, the direct cost to the student was estimated at \$13,708 and the total gross cost, including opportunity costs, was calculated at \$30,668.

Tuition and instrument fees were substantially lower for dental hygiene students. The average direct cost for first year dental hygiene (1975-1976) was estimated at \$2,845 and for the total two years at \$5,694 (table 13). Total costs, including opportunity costs for two years of dental hygiene, were estimated at \$14,174.

Costs of Pre-Dental Education to the Student

According to admission requirements to the Faculty, the successful completion of only one academic year is necessary for application to dental school. Investigation of applications and enrolment figures for 1974-75 reveals that only 21 per cent





of students enrolled had completed one year university, 32 per cent had completed two years university and 46 per cent had completed three or more years university. It is difficult to calculate average pre-dental education costs when actually three options exist. Therefore, cost figures for the three options were drafted and total estimated costs for pre-dental and dental education were also calculated.

Total direct costs for tuition, related expenses and living expenses per student enrolled in a science program were calculated for 1975-76 at \$2,800 for one year, \$5,600 for two years and \$8,400 for three years (table 14). Total gross expenses, including opportunity costs (or income forfeited), were estimated at \$21,120 for three years of pre-dental education.

The grand total of direct costs to the student for one year of pre-dental and four years of dental education was costed out at \$16,508 for 1975-76, at \$19,308 for two years of pre-dental and dental education and at \$22,108 for three years of pre-dental and dental education (table 15). Comparable totals with opportunity costs added on to pre-dental and dental education years were calculated at \$37,708 for five years, \$44,748 for six years and \$51,788 for seven years.

### Conclusions

From this brief review of some of the more prominent studies, it is clear that the financial analysis of the cost per student to the universities for the dental program is an area which needs elucidation in Canada. If the provincial funding bodies decide to allocate money to universities based on the costs per student and the number of students rather than an artificial



basic income unit (B.I.U.), then this information will be required. A Canadian study of dental education costs conducted now would reduce the chances of making hurried miscalculations that might have adverse funding results.

The most difficult step in performing a study such as the one undertaken by the U.S. Department of Health, Education and Welfare and the National Academy of Sciences is the development of a detailed break-down of the disposition of staff time with subsequent separation of the costs of undergraduate dental student, dental hygiene student and graduate student education where these students are housed together and taught by the same staff.





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# T A B L E 1

## The Cost of Dental Education to the Student Dalhousie University, Faculty of Dentistry, 1972

|                                     |               |
|-------------------------------------|---------------|
| Fees                                | \$ 3,340      |
| Instruments                         | 1,500         |
| Books                               | 500           |
| Living Expenses                     | 6,000         |
| Two Years Of Pre-Professional Study | <u>4,700</u>  |
|                                     | \$16,040      |
|                                     | <u>20,000</u> |
| Foregone Income (6 Years)           | \$36,040      |

Source: Task Force on Dental Care, Interim Report  
to the Nova Scotia Council of Health, The  
Council, Halifax, 1972, p. 15 & 16.





| Item                                            | Average annual cost | Dental School |           |          |          |          |          |          |          |          |          |
|-------------------------------------------------|---------------------|---------------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                                                 |                     | Dal           | McG       | Mtl      | Laval    | Tor      | West     | Man      | Sask     | Alta     | BC       |
| Pre-dental Education                            |                     |               |           |          |          |          |          |          |          |          |          |
| Years required                                  |                     | 2             | 2         | 2        | 2        | 1        | 2        | 1        | 1        | 2        | 3        |
| Tuition                                         | \$ 581              | \$ 1,440      | \$ 1,341* | \$ 1,788 | \$ 1,120 | \$ 650   | \$ 1,297 | \$ 300   | \$ 510   | \$ 800   | \$ 1,371 |
| Textbooks, supplies & incidentals               | 191                 | 560           | 200       | 400      | 100      | 150      | 550      | 150      | 200      | 800      | 300      |
| Sub-total, university expenses                  | 772                 | 2,000         | 1,541     | 2,188    | 1,220    | 800      | 1,847    | 450      | 710      | 1,600    | 1,671    |
| Room & board                                    | 1,127               | 2,100         | 2,410     | 3,000    | 2,000    | 1,100    | 2,550    | 1,000    | 1,350    | 1,800    | 2,670    |
| Total                                           | \$1,899             | \$ 4,100      | \$ 3,951  | \$ 5,188 | \$ 3,220 | \$ 1,900 | \$ 4,397 | \$ 1,450 | \$ 2,060 | \$ 3,400 | \$ 4,341 |
| Dental Education                                |                     |               |           |          |          |          |          |          |          |          |          |
| Years required                                  |                     | 4             | 4         | 4        | 4        | 4        | 4        | 4        | 5        | 4        | 4        |
| Tuition                                         | \$ 732              | \$ 3,340      | \$ 2,760  | \$ 2,384 | \$ 2,970 | \$ 4,400 | \$ 3,334 | \$ 2,000 | \$ 3,632 | \$ 2,400 | \$ 2,772 |
| Instruments, supplies & textbooks & incidentals | 556                 | 1,540         | 1,100     | 2,872    | 2,600    | 800      | 2,915    | 2,575    | 2,500    | 3,888    | 1,930    |
| Sub-total, university expenses                  | 1,288               | 4,880         | 3,860     | 5,256    | 5,570    | 5,200    | 6,249    | 4,575    | 6,132    | 6,288    | 4,702    |
| Room & board                                    | 1,206               | 5,000         | 5,000     | 4,000    | 4,000    | 5,500    | 5,482    | 4,500    | 6,750    | 5,800    | 3,560    |
| Total                                           | \$2,494             | \$ 9,880      | \$ 8,860  | \$ 9,256 | \$ 9,570 | \$10,700 | \$11,731 | \$ 9,075 | \$12,882 | \$12,088 | \$ 8,262 |
| GRAND TOTAL                                     |                     | \$13,980      | \$12,811  | \$14,444 | \$12,790 | \$12,600 | \$16,128 | \$10,525 | \$14,942 | \$15,488 | \$12,603 |

\*Tuition is \$1,276 in the Arts course and \$1,406 in the Science course.

Source: Canadian Dental Association, Dental Education Register 1973-1974, Canadian Dental Association Council on Education, Toronto, 1974, p. 17.



T A B L E 3

Estimated Total Cost of Course at Canadian Dental Hygiene Schools  
by Item of Expense, 1973-1974

| Item                                            | School of Dental Hygiene |         |         |         |         |         |
|-------------------------------------------------|--------------------------|---------|---------|---------|---------|---------|
|                                                 | Dal                      | Mtl     | Tor     | Man     | Alta    | BC      |
| Length of course (in years)                     | 2                        | 3       | 2       | 2       | 2       | 2       |
| Tuition                                         | \$1,440                  | \$1,586 | \$1,330 | \$ 900  | \$ 800  | \$1,012 |
| Instruments, supplies<br>textbooks, incidentals | 360                      | 290     | 380     | 500     | 693     | 663     |
| Sub-total, university<br>expenses               | 1,800                    | 1,876   | 1,710   | 1,400   | 1,493   | 1,675   |
| Room & Board                                    | 2,500                    | 1,980   | 2,200   | 1,600   | 1,920   | 1,766   |
| Total                                           | \$4,300                  | \$3,856 | \$3,910 | \$3,000 | \$3,413 | \$3,441 |

Source: Canadian Dental Association, Dental Education Register 1973-1974,  
Canadian Dental Association Council on Education, Toronto, 1974, p. 31.



# T A B L E 4

## Gross Full Cost per D.D.S. Student United States and Canada, 1963 - 1964

|                        | DDS or DMD<br>Enrollment | Mean     | Median   | Low      | High      | No. of Schools<br>Reporting |
|------------------------|--------------------------|----------|----------|----------|-----------|-----------------------------|
| PUBLIC*                | 200 & Under              | \$5,253. | \$5,370. | \$4,487. | \$5,787.  | 4                           |
|                        | 201 - 300                | 6,004.   | 6,582.   | 3,722.   | 7,275.    | 7                           |
|                        | 301 & Over               | 4,854.   | 4,721.   | 2,978.   | 8,550.    | 8                           |
|                        | Total                    | 5,362.   | 5,707.   | 2,978.   | 8,550.    | 19                          |
| PRIVATE**              | 200 & Under              | \$4,917. | \$4,039. | \$2,739. | \$10,612. | 7                           |
|                        | 201 - 300                | 3,727.   | 3,526.   | 2,982.   | 5,273.    | 9                           |
|                        | 301 & Over               | 3,618.   | 3,605.   | 2,024.   | 5,424.    | 10                          |
|                        | Total                    | 4,005.   | 3,625.   | 2,024.   | 10,612.   | 26                          |
| PUBLIC & PRIVATE TOTAL |                          | \$4,578. | \$4,039. | \$2,024. | \$10,612. | 45                          |

\*Public = state supported dental schools.

\*\*Private = privately endowed dental schools (United States only).

Source: American Association of Dental Schools, Cost Study of Dental Education, Chapel Hill, North Carolina, 1965, p. 26.





T A B L E 5

## Average and Actual Education Costs per Dental Student, by Components of Cost, 1972-73

| Components of Cost                 | Average costs | Actual costs |          |          |          |          |          |          |          |
|------------------------------------|---------------|--------------|----------|----------|----------|----------|----------|----------|----------|
|                                    |               | School 1     | School 2 | School 3 | School 4 | School 5 | School 6 | School 7 | School 8 |
| Total education costs              | \$9,059       | \$7,081      | \$6,802  | \$14,139 | \$6,586  | \$16,000 | \$7,674  | \$8,060  | \$6,132  |
| Instruction costs*                 | 8,008         | 6,279        | 6,218    | 11,514   | 5,923    | 14,198   | 7,084    | 7,092    | 5,752    |
| Faculty costs                      | 2,918         | 3,018        | 2,176    | 3,360    | 2,074    | 5,414    | 2,638    | 2,136    | 2,524    |
| Other direct costs                 | 2,275         | 1,505        | 2,816    | 2,105    | 852      | 5,068    | 2,985    | 1,262    | 1,610    |
| Indirect costs                     | 2,259         | 1,636        | 891      | 4,858    | 2,835    | 2,836    | 1,258    | 2,597    | 1,162    |
| Depreciation costs                 | 138           | 80           | 79       | 103      | 111      | 201      | 203      | 121      | 206      |
| Cross subsidization                | 418           | 40           | 256      | 1,088    | 51       | 679      | 0        | 976      | 250      |
| Research associated with education | 1,052         | 802          | 584      | 2,625    | 663      | 1,802    | 590      | 968      | 380      |

\*Clinic costs are included in each of the components of instruction costs.

Source: U.S. Department of Health, Education, Welfare, Public Health Service, Costs of Education in the Health Professions, Part I and II, National Academy of Science, Washington, D.C., 1974, p. 135.



# T A B L E 6

## Average Cost of Dental Education per Student University of Toronto, 1974-1975

| Components of Costs                                    | D.D.S. & Hygiene | Graduate              |
|--------------------------------------------------------|------------------|-----------------------|
| 1) Faculty Costs                                       | \$2,852          | \$ 9,751 or \$ 8,620* |
| 2) Non-Faculty Costs                                   | <u>2,044</u>     | <u>2,044</u>          |
| Sub-total (Personnel)                                  | 4,896            | 11,795                |
| Other Direct Costs                                     | \$1,467          | \$ 1,467              |
| Indirect Costs                                         | 710              | 710                   |
| Depreciation Costs                                     | <u>138</u>       | <u>138</u>            |
| Total Instruction Costs                                | \$7,211          | \$14,110 or \$12,979  |
| Research Associated with Education<br>(External Funds) | <u>1,353</u>     | <u>\$ 1,353</u>       |
| Total Education Costs                                  | \$8,564          | \$15,463 or \$14,332  |

\*Costs incurred if part-time students are included on equal basis  
with full-time students.





# TABLE 7

## Average Cost of Dental Education per Student University of Toronto, 1975-1976

| Components of Costs             | D.D.S. & Hygiene | Graduate              |
|---------------------------------|------------------|-----------------------|
| 1) Faculty Costs                | \$ 3,161         | \$10,864 or \$10,123* |
| 2) Non-Faculty Costs            | <u>2,398</u>     | <u>2,398</u>          |
| Sub-total (Personnel)           | \$ 5,559         | \$13,262              |
| Other Direct Costs              |                  |                       |
| Indirect Costs                  | \$ 1,531         | \$ 1,531              |
| Depreciation Costs              | <u>795</u>       | <u>795</u>            |
|                                 | 156              | 156                   |
| Total Instruction Costs         | \$ 8,041         | \$15,744              |
| Research Costs (External Funds) | <u>1,066</u>     | <u>1,066</u>          |
| Total Education Costs           | \$ 9,107         | \$16,810 or \$16,069  |
| Total Costs for 4 years         | \$36,428         |                       |

\*Costs incurred if part-time students are included on equal basis with full-time students.



T A B L E 8

Budget Summary for the Year Ending April 30, 1976  
and Comparative Budget for Year Ended April 30, 1975  
University of Toronto, St. George Campus

| Expenditure                                                                | 1974 - 1975  | 1975 - 1976  |
|----------------------------------------------------------------------------|--------------|--------------|
| Administration, University Services,<br>Student Services & General Expense | \$10,882,723 | \$12,408,540 |
| Operation & Maintenance of Physical Plant                                  | 15,095,189   | 16,420,236   |
| Major Maintenance                                                          | 150,000      | 150,000      |
| Total Administrative Costs                                                 | \$26,127,912 | \$28,978,776 |



Average Education Costs, Offsetting Research & Patient Care Revenues  
and Net Education Expenditures per Dental Student  
University of Toronto, 1974-1975, 1975-1976

|                | Total Education<br>Costs | Offsetting Revenues   |                 | Net Education<br>Expenditure |
|----------------|--------------------------|-----------------------|-----------------|------------------------------|
|                |                          | Sponsored<br>Research | Patient<br>Care |                              |
| Undergraduate* |                          |                       |                 |                              |
| 1974-1975      | \$ 8,564                 | \$1,353               | \$609           | \$ 6,602                     |
| 1975-1976      | 9,107                    | 1,066                 | 603             | 7,538                        |
| Post-Graduate  |                          |                       |                 |                              |
| 1974-1975      | \$15,463                 | \$1,353               | \$609           | \$13,501                     |
| 1975-1976      | 16,810                   | 1,066                 | 603             | 15,141                       |

\*Dental and dental hygiene undergraduates are included.





T A B L E 10

Faculty of Dentistry, University of Toronto  
Analysis of Student Enrolment and Full-time Equivalent Teaching Staff  
1974 - 1975 with Comparative Figures for 1975 - 1976

| Year      | Full-time Staff<br>in F.T.E.* | Part-time Staff<br>in F.T.E. | Total F.T.E.<br>Staff | Total F.T.E. Student<br>Enrolment             | No. of Students<br>Per F.T.E. Staff |
|-----------|-------------------------------|------------------------------|-----------------------|-----------------------------------------------|-------------------------------------|
| 1974-1975 | 50.92                         | 25.72                        | 76.64                 | 592 undergraduates &<br>61 F.T.E. graduates   | 8.5                                 |
| 1975-1976 | 53.26                         | 32.14                        | 85.40                 | 600 undergraduates &<br>61.5 F.T.E. graduates | 7.7                                 |

\*F.T.E. Full-time equivalents based on salary.

Source: University of Toronto Budget, 1975-1976.



# T A B L E 11

## Survey of Costs of Dental Education Comparative Analysis of Fiscal Support for Some Faculties of Dentistry Canada, 1974 and 1975

| Faculties                    | Student Enrolment |                |                    | Total | Total Faculty Budget | Cost per Student*<br>Total Faculty Budget |
|------------------------------|-------------------|----------------|--------------------|-------|----------------------|-------------------------------------------|
|                              | Under-graduate    | Dental Hygiene | Postgrad. or Grad. |       |                      |                                           |
| University of Saskatchewan** | 71                | --             | --                 | 71    | \$ 979,636           | \$13,798                                  |
| University of Manitoba       | 120               | 48             | 12                 | 180   | 1,291,974            | 6,729                                     |
| University of Toronto        | 500               | 102            | 67                 | 669   | 5,087,000            | 6,912                                     |
| McGill University            | 164               | --             | 10                 | 174   | 770,000              | 4,425                                     |
| Laval University             | 73                | --             | --                 | 73    | 1,050,250            | 14,387                                    |
| University of Montreal       | 329               | 33             | 10                 | 372   | 2,240,890            | 5,866                                     |
| Dalhousie University         | 105               | 40             | 6                  | 151   | 1,416,313            | 9,021                                     |
|                              |                   |                |                    |       | AVERAGE              | 8,600                                     |

\*For calculating cost per student, postgraduate or graduate enrolment is weighted by 2 and the budget divided by the total number of students.

\*\*The University of Saskatchewan has an average class size of 14 students in a 5-year curriculum.

Permission has been granted by the above dental schools to publish the budget and enrolment data.



Estimated Costs of Dental Education to the Undergraduate Dental Student  
University of Toronto, 1975-1976

| Y E A R                                                | 1                        | 2              | 3              | 4              | Total<br>4 yrs. |
|--------------------------------------------------------|--------------------------|----------------|----------------|----------------|-----------------|
| Tuition (academic fees only)                           | \$ 740                   | \$ 740         | \$ 740         | \$ 740         | \$ 2,960        |
| Instrument fees                                        | 665 <sup>1</sup>         | 578            | 191            | 158            | 1,592           |
| Incidental fees (various student<br>and athletic fees) | 89                       | 89             | 89             | 89             | 356             |
| Textbooks                                              | 200                      | 200            | 200            | 200            | 800             |
| Sub-total, university expenses                         | <u>\$1,694</u>           | <u>\$1,607</u> | <u>\$1,220</u> | <u>\$1,187</u> | <u>\$ 5,708</u> |
| <u>Living Expenses</u>                                 |                          |                |                |                |                 |
| Room and Board                                         | \$1,200 <sup>2</sup>     | \$1,200        | \$1,200        | \$1,200        | \$ 4,800        |
| Incidentals (\$25 a week spending money)               | 800                      | 800            | 800            | 800            | 3,200           |
| Sub-total                                              | <u>\$2,000</u>           | <u>\$2,000</u> | <u>\$2,000</u> | <u>\$2,000</u> | <u>\$ 8,000</u> |
| Total Costs                                            | \$3,694                  | \$3,607        | \$3,220        | \$3,187        | \$13,708        |
| Loss of potential income<br>per school year (7 months) | <u>4,240<sup>3</sup></u> | <u>4,240</u>   | <u>4,240</u>   | <u>4,240</u>   | <u>16,960</u>   |
| Grand Total                                            | \$7,934                  | \$7,847        | \$7,460        | \$7,427        | \$30,668        |

<sup>1</sup>A laundry fee for lab coats, ranging from \$15 to \$40 for male students, is included in this figure. Female students do not avail themselves of this service and, therefore, pay slightly less for instrument fees. As there are few women students in dentistry, the variance in fee is negligible.

<sup>2</sup>This figure represents costs of room and board for 7½ to 8 months in campus co-ops (maximum amount) or Wycliffe College. University residence fees for total room and board are somewhat higher--\$1,375 per school year. Room and board in private homes ranges from \$1,200 to \$1,360 on an 8-month basis.

<sup>3</sup>This figure was derived from information provided in "Income Distribution by Size in Canada" Statistics Canada 1975. The Ontario mean annual salary for individuals in 1974 was \$6,364, and a rough estimate for 8 months was calculated.





Estimated Costs of Education to the Dental Hygiene Student  
University of Toronto, 1975-1976

| YEAR                                                   | 1                       | 2          | Total 2 yrs. |
|--------------------------------------------------------|-------------------------|------------|--------------|
| Tuition (academic fees only)                           | \$ 520.00               | \$ 520.00  | \$ 1,040.00  |
| Instrument fees                                        | 86.00                   | 89.00      | 175.00       |
| Various student & athletic fees                        | 89.50                   | 89.50      | 179.00       |
| Textbooks                                              | 150.00                  | 150.00     | 300.00       |
| Sub-total, university expenses                         | \$ 845.50               | \$ 848.50  | 1,694.00     |
| <u>Living Expenses</u>                                 |                         |            |              |
| Room & board                                           | \$1,200.00 <sup>1</sup> | \$1,200.00 | \$ 2,400.00  |
| Incidentals (\$25 a wk. pocket money)                  | 800.00                  | 800.00     | 1,600.00     |
| Sub-total                                              | 2,000.00                | 2,000.00   | 4,000.00     |
| Total Costs                                            | \$2,845.50              | \$2,848.50 | \$ 5,694.00  |
| Loss of potential income<br>per school year (8 months) | 4,240.00 <sup>2</sup>   | 4,240.00   | 8,480.00     |
| <u>Grand Total</u>                                     | \$7,085.50              | \$7,088.50 | \$14,174.00  |

<sup>1</sup>This figure represents costs of room & board for 7½ to 8 months in campus co-ops (maximum amount) or Wycliffe College. University residence fees for total room & board are somewhat higher--\$1,375 per school year. Room & board in private home ranges from \$1,200 to \$1,360 on a 8-month basis.

<sup>2</sup>This figure was derived from information provided in "Income Distribution by Size in Canada" Statistics Canada 1975. The Ontario mean annual salary for individuals in 1974 was quoted as \$6,364, and a rough estimate for 8 months was calculated.



Estimated Cost of Pre-Dental Education to the Student  
University of Toronto, 1975-1976

|                                                        | 1 year                      | 2 years           | 3 years           |
|--------------------------------------------------------|-----------------------------|-------------------|-------------------|
| Tuition                                                | \$ 650                      | \$ 1,300          | \$ 1,950          |
| Textbooks                                              | 150                         | 300               | 450               |
| Sub-total, university expenses                         | 800                         | 1,600             | 2,400             |
| <u>Living Expenses</u>                                 |                             |                   |                   |
| Room & Board (8 months)<br>Incidentals (\$25 a week)   | \$1,200 <sup>1</sup><br>800 | \$ 2,400<br>1,600 | \$ 3,600<br>2,400 |
| Sub-total                                              | \$2,000                     | \$ 4,000          | \$ 6,000          |
| <u>Total Costs</u>                                     | \$2,800                     | \$ 5,600          | \$ 8,400          |
| Loss of potential income<br>per school year (8 months) | 4,240                       | 8,480             | 12,720            |
| <u>Grand Total</u>                                     | \$7,040                     | \$14,080          | \$21,120          |

<sup>1</sup>See previous note on tables 14 and 15 re calculation of room and board.



Estimated Costs of Pre-Dental and Dental Education to the Student  
University of Toronto, 1975-1976

| Years Pre-dental Education                                             | 1 year        | 2 years       | 3 years       |
|------------------------------------------------------------------------|---------------|---------------|---------------|
| Costs of Pre-dental education <sup>1</sup><br>without income loss      | \$ 2,800      | \$ 5,600      | \$ 8,400      |
| Costs of Dental Education <sup>2</sup><br>without income loss (4 yrs.) | <u>13,708</u> | <u>13,708</u> | <u>13,708</u> |
| Total Costs                                                            | 16,508        | 19,308        | 22,108        |
| Costs of Pre-dental education<br>and income loss                       | \$ 7,040      | \$14,080      | \$21,120      |
| Costs of Dental Education<br>and income loss (4 yrs.)                  | <u>30,668</u> | <u>30,668</u> | <u>30,668</u> |
| Total Costs                                                            | \$37,708      | \$44,748      | \$51,788      |

<sup>1</sup>see table 14

<sup>2</sup>see table 13









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